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REMARKS

Reconsideration and withdrawal of the outstanding rejections in the above-identified application are respectfully requested.

In the office action, Claims 1, 2, 9, 10, 13, 14, 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 4,974,043 to Stevens (hereinafter Stevens) in view of Applicant's Admitted Prior Art (hereinafter referred to as AAAPA). Claims 5, 6, 15 and 16 are rejected under 35 U.S.C. 103(a) as unpatentable over Stevens in view of the AAPA, and in further view of U.S. Patent No. 5,903,021 to Lee et al. Applicants respectfully traverse the Examiner's rejection for at least the following reason.

Independent claim 1 recites in pertinent part:

said read-out procedures comprising the steps of:
cutting off said incident light;
raising up said electric potential barrier to a higher level than the first level after said cutting off of said incident light; and
starting reading out said signal charges (emphasis added).

Stevens states that:

To control the exposure time of the image sensor 10, at a time t during the integration period prior to the transfer period equal to the desired exposure time, the photodetectors are reset. As shown in Fig. 5, the photodetectors 16 are reset.

(col. 4, lines 54-58, emphasis added). Stevens further states that Fig. 5 is the potential diagram of the solid state image sensor during photodetector reset. Accordingly, Fig. 5 of Stevens shows a potential diagram of photodetectors during photodetector reset and doesn't show a potential diagram photodetectors after cutting off an incident light and before starting reading out signal charges. If, as suggested by the rejection, a

photodetector reset after cutting off of the incident light in the read-out procedures is carried out, signal charges to be read wouldn't exist.

Further, Stevens discloses that "[o]nce the photodetectors 16 have been dumped of the charge carriers, the voltage on the shutter gate 24 is lowered to provide the potential barrier 24P shown in Fig. 4," (col. 4, lines 65-68) and doesn't disclose that the potential barrier of Fig. 4 is returned to the potential barrier of Fig. 5 after the desired exposure. (col. 5, lines 1-24).

Fig. 5B of the present application shows a potential diagram during a potential barrier rise and Fig. 5D of the present application shows a potential diagram during reset of signal charges. (pg. 10, line 28-pg. 11, line 19). Fig. 5D of the present application substantially corresponds to Fig. 5 of Stevens in that both diagrams show the potential of the photodetectors during a reset.

Thus clearly, Fig. 5 of Stevens does not show a rise of potential barrier as shown in Fig. 5B of the present application.

Moreover, Stevens states, "[a]s shown in Fig. 5, the photodetectors 16 are reset by applying a voltage to the shutter gate 24 through the second gates 44 of the CCD shift register so as to raise the potential 24P under the shutter gates 24 to a level above the potential 16P in photodetectors 16." Stevens goes on to state that "[o]nce the photodetectors 16 have been dumped of the charge carriers, the voltage on the shutter gate 24 is lowered to provide the potential barrier 24P shown in Fig. 4." (col. 4 lines 65-68). However, a raise of "potential" and a raise of "potential barrier" are different, as can be seen with reference to Fig. 5B of the instant application, which shows $\Delta\phi$ or the raised amount of potential barrier.

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These shortcomings of Stevens are not addressed by the relied upon portions of the AAPA or Lee.

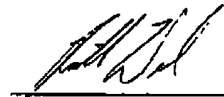
Accordingly, for at least these reasons, it is submitted that independent claims 1 and 19 patentably distinguish over the relied upon portions of the cited prior art references and are allowable. Claims 2, 5, 6, 9, 10, 13-18, and 20-22, which depend from one of these allowable base claims are allowable therewith.

CONCLUSION

In view of the remarks set forth above, this application is believed to be in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,



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